

CLAIMS:

1. A radiation computed tomography apparatus comprising:
a radiation source for emitting radiation toward a subject;
an adjusting device for adjusting an emission extent of the radiation from said radiation source in response to a control command;
a detector array forming a two-dimensional radiation detection surface comprised of a plurality of radiation detectors, for detecting the radiation on said radiation detection surface;
a reconstructing device for calculating and reconstructing tomographic image data for a tomographic image of said subject based on projection data of said subject by the radiation acquired by said detector array; and
a control device for calculating an irradiated region in said radiation detection surface required for acquiring said projection data for use in reconstruction of a certain portion of said tomographic image data based on parameters relating to reconstruction of said tomographic image data by said reconstructing device, and outputting said control command to said adjusting device for emitting the radiation to impinge upon said irradiated region.
2. The radiation computed tomography apparatus of claim 1, wherein:
said apparatus further comprises a moving device supporting said radiation source, adjusting device and detector array while maintaining their relative positional relationship; and
said moving device rotates said radiation source, adjusting device and detector array around a predefined axis with respect to said subject while moving them relative to said subject in said axis direction.
3. The radiation computed tomography apparatus of claim 2, wherein:

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said control device outputs said control command to said adjusting device for emitting the radiation to constantly impinge upon said irradiated region during movement of said moving device.

4. The radiation computed tomography apparatus of claim 2, wherein:
said control device causes the radiation to impinge upon a partial irradiated region within said irradiated region, and outputs a control command to said adjusting device for consecutively changing the position of said partial irradiated region as said moving device moves.

5. The radiation computed tomography apparatus of claim 4, wherein:
said partial irradiated region is a region upon which the radiation impinges passing through said subject corresponding to a certain portion of said tomographic image during movement of said moving device.

6. The radiation computed tomography apparatus of claim 2 wherein:
a helical pitch is one or less.

7. The radiation computed tomography apparatus of claim 6, wherein:
said parameters include the size of said tomographic image, the position of said tomographic image with respect to said axis, the number of said radiation detectors in a direction along said axis, the positional relationship between said radiation source and said detector array, and said helical pitch.

8. The radiation computed tomography apparatus of claim 2, wherein:
said tomographic image data is reconstructed at a midpoint of a distance of movement of said moving device relative to said subject during one rotation, based on said projection data for one rotation of said moving device around said

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axis.

9. A radiation computed tomography apparatus comprising a radiation source for emitting radiation having a predefined width toward a subject, and a detector array forming a two-dimensional radiation detection surface comprised of a plurality of radiation detectors, for detecting the radiation on said radiation detection surface, said apparatus for calculating and reconstructing tomographic image data for a tomographic image of said subject based on projection data of said subject by the radiation from said radiation source acquired by said detector array, wherein said apparatus further comprises:

a processing device for, in reconstruction of said tomographic image data, determining the number of times of use of said projection data from each of said plurality of radiation detectors based on parameters relating to reconstruction of said tomographic image data.

10. The radiation computed tomography apparatus of claim 9, wherein:

said apparatus further comprises a moving device supporting said radiation source and detector array while maintaining their relative positional relationship; and

said moving device rotates said radiation source and detector array around a predefined axis with respect to said subject while moving them relative to said subject in said axis direction.

11. The radiation computed tomography apparatus of claim 10, wherein:

the radiation is emitted to constantly impinge upon whole of said radiation detection surface during movement of said moving device.

12. The radiation computed tomography apparatus of claim 10, further

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comprising:

a calculating device for determining the amount of movement of said moving device according to said number of times of use determined by said processing device.

13. The radiation computed tomography apparatus of claim 12, wherein:
said calculating device determines a rotation angle of said moving device so that said projection data for said number of times of use determined according to said parameters are acquired by each of said radiation detectors.

14. The radiation computed tomography apparatus of claim 13, wherein:
said tomographic image data is reconstructed at a midpoint of a distance of movement of said moving device relative to said subject during a rotation by said rotation angle determined by said calculating device.

15. The radiation computed tomography apparatus of claim 10, wherein:
a helical pitch is one or less.

16. The radiation computed tomography apparatus of claim 15, wherein:
said parameters include the size of said tomographic image, the position of said tomographic image with respect to said axis, the number of said radiation detectors in a direction along said axis, the positional relationship between said radiation source and said detector array, and said helical pitch.